

REMARKS

Status of the Claims

Claims 1, 7-8, 11-13, and 21 are pending in the above-identified application. Support for the amendments to claims 1 and 12 can be found in claims 4, 9-10, and 16-20. As such, claims 4, 9-10, and 16-20 are cancelled herein. Claims 7 and 11 are amended to change their dependency. Thus, no new matter has been added. Based upon the above considerations, entry of the present amendment is respectfully requested.

In view of the following remarks, Applicants respectfully request that the Examiner withdraw all rejections and allow the currently pending claims.

Drawings

Since no objection has been received, Applicants assume that the drawings are acceptable and that no further action is necessary. Confirmation thereof in the next Office Action is respectfully requested.

Issues over the Cited References

1) Claims 1, 4, 8, and 21 are rejected under 35 U.S.C. § 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as being obvious over Hashimoto et al. '812 (US 7,303,812).

2) Claims 1, 4, 7-8, and 21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hashimoto et al. '812 in view of Argoitia et al. '936 (US 6,749,936).

3) Claims 9-13 and 16-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hashimoto et al. '812 solely, or alternatively, in view of Argoitia et al. '936 and further in view of Bergholts et al. '245 (WO 99/61245).

Applicants respectfully traverse, and reconsideration and withdrawal of these rejections are respectfully requested.

Legal Standard for Determining Anticipation

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). “When a claim covers several structures or compositions, either generically or as alternatives, the claim is deemed anticipated if any of the structures or compositions within the scope of the claim is known in the prior art.” *Brown v. 3M*, 265 F.3d 1349, 1351, 60 USPQ2d 1375, 1376 (Fed. Cir. 2001). “The identical invention must be shown in as complete detail as is contained in the ... claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis verbis* test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

Legal Standard for Determining Prima Facie Obviousness

MPEP 2141 sets forth the guidelines in determining obviousness. First, the Examiner has to take into account the factual inquiries set forth in *Graham v. John Deere*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), which has provided the controlling framework for an obviousness analysis. The four *Graham* factors are:

- (a) determining the scope and content of the prior art;
- (b) ascertaining the differences between the prior art and the claims in issue;
- (c) resolving the level of ordinary skill in the pertinent art; and
- (d) evaluating any evidence of secondary considerations.

Graham v. John Deere, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966).

Second, the Examiner has to provide some rationale for determining obviousness. MPEP 2143 sets forth some rationales that were established in the recent decision of *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (U.S. 2007).

As the MPEP directs, all claim limitations must be considered in view of the cited prior art in order to establish a *prima facie* case of obviousness. See MPEP 2143.03.

The Present Invention

An object of the present invention is to provide a labeled container that can prevent discoloration and deterioration caused by light, can be printed clearly with a design, and yields an excellent appearance of its contents when viewed from outside (page 2, line 23 to page 3, line 4). Another object of the present invention is to provide a heat-shrinkable opaque white film and a shrink label which are useful for preparing the labeled container (page 3, lines 4-6).

As amended, independent claim 1 recites:

A heat-shrinkable opaque white film comprising a core layer; and white back and front layers,

wherein the core layer comprises carbon black as a black colorant and the amount of carbon black is 0.01 to 3 percent by weight based on the total weight of the core layer,

wherein each of the white front layer and the white back layer independently comprises titanium dioxide as a white colorant, and the content of titanium dioxide is 10 to 40 percent by weight of the total weight of each layer,

wherein each of the front layer, the core layer, and the back layer independently is a heat-shrinkable film layer;

wherein the thickness of the core layer is 5% to 30% of the total thickness of the heat-shrinkable opaque film;

wherein the film has a transmission factor to light at wavelengths of 380 to 500 nm of 5% or less;

wherein the heat-shrinkage percentage of the film is about 20% to about 90% when the film is immersed in hot water at 90°C for ten seconds; and

wherein the W-value of the surface of the heat-shrinkable films is 75 or more.

As another embodiment of the present invention, claim 12 recites:

A heat-shrinkable opaque white film comprising a core layer and white back and front layers,

wherein the core layer comprises at least one chromatic colorant selected from yellow pigments, red pigments, and brown pigments and has a chromatic color with low transparency to light at wavelengths of 380 to 500 nm, and the content of the chromatic colorant is 0.01 to 1 percent by weight based on the total weight of the core layer;

wherein each of the white front layer and the white back layer independently comprises titanium dioxide as a white colorant, and the content of titanium dioxide is 5 to 40 percent by weight of the total weight of each layer,

wherein each of the front layer, the core layer, and the back layer independently is a heat-shrinkable film layer;

wherein the thickness of the core layer is 5% to 30% of the total thickness of the heat-shrinkable opaque film;

wherein the film has a transmission factor to light at wavelengths of 380 to 500 nm of 5% or less;
wherein the heat-shrinkage percentage of the film is about 20% to about 90% when the film is immersed in hot water at 90°C for ten seconds; and
wherein the W-value of the surface of the heat-shrinkable films is 75 or more.

The heat-shrinkable opaque white film according to the present invention has a core layer of black, grey, or a chromatic color with low transparency to light at wavelengths of 380 to 500 nm (the ultraviolet to blue-green visible-light regions) and can thereby prevent discoloration and deterioration of a container's contents, such as beverages. The present invention also enables clear printing of a design on a front layer (page 47, line 5 to page 48, line 3). In addition, when a shrink label using the heat-shrinkable opaque white film is applied to a container, the film has a white back layer, which gives an excellent impression of the contents when applied to a container (page 25, line 23 to page 26, line 10).

Distinctions over the Cited References

In stark contrast, Hashimoto et al. '812 relate to a heat-shrinkable multi-layered polyester film made of a polyester resin that comprises a three layer A/B/A structure, having a good light blocking property. The film has a core (B) surrounded by skin layers (A). When an opaque film layer is required, calcium carbonate, titanium dioxide, carbon black, and blends are used in the core and skin layers (col. 3, lines 15-68, col. 4, lines 1-20, col. 5, lines 20-30) in 0.1 to 20 wt% along with resins such as polyethylene or polystyrene (col. 5, lines 45-68). The film has a three layer structure and heat-shrinkable property and may contain inactive fine particles such as titanium oxide and carbon black.

Argoitia et al. '936 disclose achromatic multilayer pigments used in ink, paint, or moldable plastic material with resins such as styrenes (col. 21, lines 1-30) and combined with pigments (chromatic) TiO₂ to produce unique color effects and with carbon black, blue, or aluminum to control lightness and other color properties. The pigment flakes of Argoitia et al. '936 can be used as inks for printing on packaging and containers or can be used to form colored plastic materials, extruded parts, and laminating films (col. 21, lines 50-68; col. 22, lines 1-36).

Argoitia et al. '936 relate to a technology that changes the color of the surface to impart to the packaging material a desired appearance.

Bergholts et al. '245 relate to a packaging material including layers of plastic permanently united with one another and of which at least one layer includes, for the purpose of elevating light-barrier properties, distributed particles of carbon black. Specifically, the reference discloses a packaging material of shrinkable polyethylene coextruded material and structure wherein the core may comprise 3-80% white particles and 0.04-1% carbon black and the outer skin layers may comprise TiO_2 in 5% or less of the total weight of the outer layer and of the interjacent layer (col. 3, lines 1-60; col. 4, lines 20-55; col. 5, lines 1-45). Such additions make the overall film for bottles have a white appearance that is attractive to the consumer despite the presence of carbon black in the packaging material.

As amended, claim 1 incorporates the subject matter of claims 10, 17, and 18, which were not included in the first two rejections. As such, only the third rejection remains.

Turning to Hashimoto et al. '812 solely, Hashimoto et al. '812 disclose a heat-shrinkable film comprising a three layer structure. However, the film of Hashimoto et al. '812 differs from the present invention in three ways.

(1) Layer structure

(i) Configuration of core layer

A heat-shrinkable opaque white film of the present invention comprises a core layer and white back and front layers, wherein the core layer comprises carbon black as a black colorant (claim 1) or at least one chromatic colorant selected from the group consisting of yellow pigments, red pigments, and brown pigments (claim 12), and each of the white front layer and the white back layer independently comprises titanium dioxide used as a white colorant. In contrast, Hashimoto et al. '812 merely describe adding carbon black and titanium dioxide to a core layer and/or white back and front layers and do not specifically describe or suggest which layer each colorant is added in. Rather, in most of the descriptions in the reference, the type and the constituent of the fine particle added to each layer are identical, which is quite different from the present invention.

Namely, although Hashimoto et al. '812 disclose a heat-shrinkable film containing the titanium oxide of the same composition in all three layers, working examples that add particles other than titanium oxide are not described, and the description of the carbon black is only described as one example of the particulate. Hashimoto et al. '812 neither describe nor suggest a heat-shrinkable film comprising a core layer and white back and front layers, the core layer comprising a specific amount of carbon black and each of the white front layer and the white back layer independently comprising a specific amount of titanium dioxide as described in the present invention. In addition, Hashimoto et al. '812 fail to disclose any variations of the particle added into each layer.

Rather, Hashimoto et al. '812 essentially disclose only a film of the composition of white/white/white since titanium oxide is included in all three layers. The level of imperviousness to light needed in the present invention is not achieved with the white/white/white film of Hashimoto et al. '812.

The Examiner asserts that completing the film of the present invention by optionally using the same coloring agent is obvious because the same coloring agent is described in Hashimoto et al. '812. For instance, when carbon black is used, imperviousness to light will be enhanced while whiteness index will decrease. Unless the contents of the coloring agents of each layer and the thickness of each layer are specifically set, the film of the present invention that satisfies both the effect of the imperviousness to light and the whiteness index cannot be manufactured. Therefore, the film of the present invention is not obvious.

Since the difference of the layer configuration relates to the fundamental nature of the invention, it is not possible to achieve it easily by an arbitrary selection. That is, carbon black in Hashimoto et al. '812 is one example of an "additional" particle and not an "indispensable element" as with the present invention. Although deciding the variation of the particles combined into each layer by an arbitrary selection might lead to the discovery of a performance equivalent to that of the present invention, undue experimentation would be needed to accomplish the performance in such a case. Since the configuration is not a mere combination but accompanies unexpected effects and requires undue experimentation to complete, it is considered unobvious.

Therefore, the Examiner should demonstrate the existence of specific grounds of the layer configuration of the present invention in the cited reference to deny unobviousness of the present invention. Because Hashimoto et al. '812 only describe a three layer structure and the inclusion of the carbon black and the titanium oxide, undue experimentation is necessary to complete the present invention based on the information described in Hashimoto et al. '812, and therefore, the present invention is not obvious.

(ii) Thickness of core layer

Although the present invention recites that the thickness of the core layer is 5% to 30% of the total thickness of the heat-shrinkable film (claims 1 and 2), Hashimoto et al. '812 only recite that the thickness ratio of the A layer to B layer (A/B/A) is preferably in the range of 25/50/25 to 10/80/10 (col. 9, lines 29-32). That is, the thickness of a core layer is 50-80% to the thickness of the total thickness of the heat-shrinkable film. Thus, there are quite different configurations of the core layer between the film of the present invention and the film of Hashimoto et al. '812. Moreover, it is not easy to adjust the film thickness of Hashimoto et al. '812 to the thickness of the present invention by an arbitrary selection. In fact, Hashimoto et al. '812 states, "With a thickness ratio of B layer of less than 50%, the film is short of the light blocking property, revealing the content in a container wrapped thereby, or causing deterioration of the content due to insufficient blocking of UV light, and thus undesirable" (col. 9, lines 32-36). That is, Hashimoto et al. '812 "teach away" from producing a film with a thinner core layer. Hashimoto et al. '812 do not refer anywhere to the necessity for making a core layer with a thickness of 5-30% of the total thickness of the heat-shrinkable film.

(iii) Chromatic colorant

Hashimoto et al. '812 do not disclose the addition of colorant of yellow, red, or brown pigments to a core layer. Thus, it is impossible to modify or change the configuration and the thickness of a core layer based on the description of Hashimoto et al. '812.

(2) Insufficient light transmittance

The film of the present invention has a transmission factor to light at wavelengths of 380 to 500 nm of 5% or less (claims 1 and 12). However, the inventive examples of Hashimoto et al. '812 have a transmission of a minimum of 13% (Table 1 and working example 5). The film of Hashimoto et al. '812 does not meet the limitation for the light transmittance of 5% or less, which is claimed in the present invention. This difference is caused by the film of Hashimoto et al. '812 having a configuration of white/white/white. Based on the Rule 132 Declaration submitted on September 30, 2009, sufficient imperviousness to light is not achieved using the white/white/white configuration film.

However, no description that the kind and the amount of colorant are changed to improve the performance of imperviousness to light can be found anywhere in Hashimoto et al. '812. As discussed above, the value of 13% is the best value achieved by Hashimoto et al. '812, and the possibility of further improving this value is low since 20% of the titanium oxide has already been added in example 5 and Hashimoto et al. '812 describe that, when the content exceeds 20 weight %, polyester resin leads to a film weaker in mechanical strength and tends to give rise to problems in the film-casting process (col. 5, lines 14-19). Although this description admits the limit of the performance of the film of Hashimoto et al. '812, any necessities for further improving the light transmittance are not described, and no descriptions or suggestions are provided in Hashimoto et al. '812 or the knowledge in the art regarding changing the composition of the film or changing the composition of the film to exceed the conventional methods. Therefore, it is impossible to improve the light transmittance based on the description of Hashimoto et al. '812, and the light transmittance is not an arbitrary option.

(3) Difference of W-value

The present invention recites the W-value as a distinguishing property of the film, and Hashimoto et al. '812 do not. The Examiner asserts that because the same colors and materials are employed, the resultant properties are presumed inherently present. However, Applicants respectfully traverse.

For example, even if the colors and materials used in the films are same, W-values of the films are remarkably different depending on the presence of a lot of carbon black or its absence (See comparative example 1 and comparative example 2 of the present invention). Therefore, the present invention has accomplished 75 or more of W-value along with high imperviousness to light by limiting the kinds of colorants and their contents as well as by defining the thickness of the layers. The W-value is not an inherent character based on the description of Hashimoto et al. '812. The Examiner should show the grounds of the assertion that the W-value is an inherent character of the films.

Thus, Applicants respectfully submit that the present invention clearly has novelty over Hashimoto et al. '812 because the present invention and Hashimoto et al. '812 have many differences in configuration. Moreover, these differences are neither obvious by themselves nor easily achievable taking into consideration the common arts. Specifically, these differences are related to the fundamental property of the invention, the differences are neither described nor suggested by Hashimoto et al. '812, and Hashimoto et al. '812 teach away from the present invention.

Although the Examiner asserts that because the present invention and Hashimoto et al. '812 share same colorants, it is easy to complete the present invention by arbitrarily and selectively using the same colorant. However, considering the situation where the configurations of films are remarkably different, the heat shrinkable film of the present invention, which accomplishes both high imperviousness to light and high whiteness index, is not completed unless the kind of colorant, the content of colorant, and the thickness of each layer are specifically adjusted. Therefore, a *prime facie* case of obviousness has not been established, and withdrawal of the outstanding rejection is respectfully requested.

Turning to Hashimoto et al. '812 in view of Argoitia et al. '936 and further in view of Bergholts et al. '245, the film of Hashimoto et al. '812 differ from the film of the present invention based on the differences of the layer composition, the thickness of the core layer, the use of chromatic colorant, the transmission factor to light, and the W-value as described above.

Argoitia et al. '936 merely disclose the use of achromatic multilayer pigments used in ink, paint, or moldable plastic material and an iridescent diffractive effect over an achromatic background. Argoitia et al. '936 fail to describe or suggest the layer composition, the thickness of the core layer, the transmission factor to light, and the W-value, which are distinguishing features of the present invention.

Bergholts et al. '245 disclose the use of 3-80% of light-reflecting mineral particles (white pigment) (col. 3, lines 42-46) and 0.04-1% carbon black (col. 4, lines 54-58) and employing very slight quantities of white pigment (TiO_2) in one or both outer layers (col. 5, lines 14-23). However, Bergholts et al. '245 fail to describe or suggest 10 to 40 percent as the content of titanium dioxide, the thickness of the core layer, the use of chromatic colorant, the transmission factor to light, and the W-value, which are distinguishing features of the present invention.

Therefore, when Hashimoto et al. '812 is combined with Argoitia et al. '936 and Bergholts et al. '245, the cited references allegedly recite the use of 0.04-1% carbon black in a core layer (Bergholts et al. '245), the use of 5% or less TiO_2 in the front layers (Bergholts et al. '245), and the use of chromatic colorants (Argoitia et al. '936). However, the thickness of the core layer, the transmission factor to light, and the W-value are still neither disclosed nor suggested by the cited references. Therefore, a *prima facie* case of obviousness has not been established.

Although the Examiner asserts that it is easy to complete the present invention by a combination of the cited references and that the present invention is obvious, the distinguishing features of the present invention such as the thickness of the core layer, the transmission factor to light, and the W-value are not disclosed by the cited references, as described above.

Moreover, since Hashimoto et al. '812 substantially describe only a film of a white/white/white configuration, one of ordinary skill in the art would have no reason, rationale, or motivation to drastically change the film configuration by using 0.04-1% carbon black for a core layer. Therefore, the combination is not obvious. Rather, Applicants respectfully submit that the distinguishing features of the present invention (completing a heat-shrinkable opaque white film having excellent whiteness index, imperviousness to light, and high shrinkability) is not easily derived from the cited references without undue experimentation.

In addition, Applicants respectfully submit that it is difficult to create the present invention by an arbitrary selection of the features of the cited references to complete the distinguishing features of the present invention, which cannot be derived from the cited references. The Examiner asserted that the setting of parameters is inherent in the film of the cited references and is within the range of those skilled in the art's routine business. However, the heat-shrinkable opaque white film of the present invention and the films of the cited references are different in configuration as described above. If one tries to complete the present invention from the information of the cited references, one must set a lot of factors or parameters. Completing the present invention by selecting the best factor from a myriad of possible combinations is beyond routine business and requires undue experimentation. Therefore, it is evident that the present invention is not obvious.

The present invention provides a labeled container that can prevent its contents from discoloration and deterioration caused by light, can be printed clearly with a design, and yields an excellent appearance of the contents when viewed from outside. The present invention also provides a heat-shrinkable opaque white film and a shrink label, which are useful for preparing the labeled container. By covering a container body with a shrink label using a heat-shrinkable opaque white film having a specific layer configuration, the resulting container can prevent its contents, such as beverages, from light-induced deterioration, has a clear design, and shows an excellent appearance of the contents because the contents have their original colors.

Moreover, regarding claim 12, since there are no descriptions in Hashimoto et al. '812, Argoitia et al. '936, and Bergholts et al. '245 about using 0.01-1 percent by weight of yellow, red and brown pigment, the invention of claim 12 is not obvious even if the references are combined.

The present invention demonstrates the given performance, such as a transmission factor to light at wavelengths of 380 to 500 nm of 5% or less, by adopting a specific embodiment as recited in independent claims 1 and 12. That is, the film of the present invention exerts excellent effects such as having imperviousness to light and enabling clear printing when using heat-shrinkable films comprising (i) a core layer comprising a specific amount of carbon black or chromatic colorant, (ii) using white back and front layers comprising a specific amount of titanium oxide, and (iii) setting the thickness of the core layer to a specific ratio of total thickness of the film.

As stated in *KSR International Co. v Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007), “rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” Furthermore, the mere fact that references *can* be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art. *Id.* The present invention is not predictable. The present invention exerts a performance of 75 or more of W-value and a transmission factor to light at wavelengths of 380 to 500 nm of 5% or less for the first time by setting the unique configuration having the core layer comprising colorant and white back and front layers and selecting all of the specific parameters disclosed in claims 1 and 12 and was never known before.

The Examiner asserts that changing the kind and amount of the particle to improve the performance of a film is within a usual range of those skilled in the art. However, Applicants respectfully submit that the differences between the present invention and the cited references are great. Even if the differences were not great, undue experimentation would be needed to set the parameters of the present invention. Should the Examiner disagree, Applicants respectfully request that the Examiner provide evidence that changing the disclosure of the cited references to reach the present invention would be obvious to one of ordinary skill in the art.

To establish a *prima facie* case of obviousness of a claimed invention, all of the claim limitations must be disclosed by the cited references. As discussed above, Hashimoto et al. ‘812 in view of Argoitia et al. ‘936 and Bergholts et al. ‘245 fail to disclose all of the claim limitations of independent claims 1 and 12, and those claims dependent thereon. Accordingly, the combination of references does not render the present invention obvious.

Furthermore, the cited references or the knowledge in the art provide no reason or rationale that would allow one of ordinary skill in the art to arrive at the present invention as claimed. Therefore, a *prima facie* case of obviousness has not been established, and withdrawal of the outstanding rejection is respectfully requested. Any contentions of the USPTO to the contrary must be reconsidered at present.

Conclusion

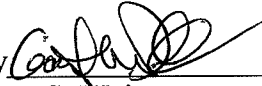
All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Chad M. Rink, Registration No. 58,258, at the telephone number of the undersigned below to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Director is hereby authorized in this, concurrent, and future replies to charge any fees required during the pendency of the above-identified application or credit any overpayment to Deposit Account No. 02-2448.

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Respectfully submitted,

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